



Title	SUPPLEMENT TO THE CHECK-LIST OF THE FAMILY RHYNCHOPHORIDAE (COLEOPTERA) OF JAPAN, WITH DESCRIPTIONS OF A NEW GENUS AND FOUR NEW SPECIES
Author(s)	Morimoto, Katsura
Citation	ESAKIA    23    p67-76
Issue Date	1985-11-30
URL	<a href="http://hdl.handle.net/2324/2471">http://hdl.handle.net/2324/2471</a>
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SUPPLEMENT TO THE CHECK-LIST OF THE FAMILY RHYNCHOPHORIDAE  
(COLEOPTERA) OF JAPAN, WITH DESCRIPTIONS OF A NEW GENUS  
AND FOUR NEW SPECIES\*

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**Abstract**

This is the supplement to my check-list of the family Rhynchophoridae of Japan (1978). *Diocalandra frumenti* (Fabricius) and *Sphenophorus venatus vestitus* Chittenden have recently been introduced and established in Japan. The following new taxa are described: *Dryophthorus kusuii* sp. nov., *D. konishii* sp. nov. (= *D. corticalis* auct. for Japanese species), *D. ogasawaraensis* sp. nov., and *Tetrasynommatus thompsoni* gen. et sp. nov.

This is the supplement to my check-list of the family Rhynchophoridae of Japan (Esakia, (12) : 103-118, 1978), based on the specimens in the collections of the British Museum (Natural History), Tokyo University of Agriculture and Kyushu University. Some specimens from the former collection were taken by G. Lewis in 1880 and entrusted the identification to me by Dr. R. T. Thompson, who also sent me two specimens of *Dryophthorus corticalis* for comparison of the Japanese specimens with those of England.

I wish to express my cordial thanks to Dr. R. T. Thompson of the British Museum (Natural History) and Prof. Y. Watanabe of Tokyo University of Agriculture for their kind help and arrangement, and to many friends for their kindness giving me the material. My thanks are also due to Prof. Y. Hirashima of Kyushu University for his kind guidance in the course of the present study.

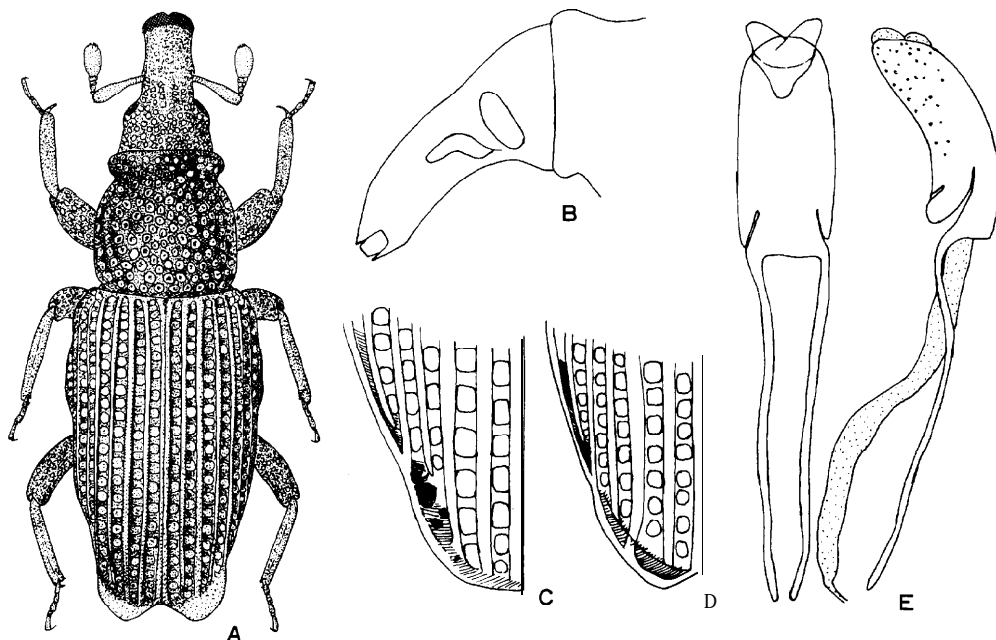
DESCRIPTIONS **OF NEW TAXA**

***Dryophthorus konishii* sp. nov.**

*Dryophthorus corticalis*: Konishi (nec Paykull), 1963, Ins. Mats., 25 : 125 (Japan : Hokkaido, Honshu, Shikoku ; hosts).-Morimoto, 1984, Col. Jap. in color, IV : 345.

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\* Contribution from the Entomological Laboratory, Faculty of Agriculture, Kyushu University, Fukuoka (Ser. 3, No. 185).



**Fig. 1.** *Dryophthorus konishii* sp. nov.

A : Paratype (Engaru). B : Ditto, head, lateral. C : Apex of left elytron (Mt. Homan, Fukuoka Pref.).  
D : Ditto (Engaru, Hokkaido). E : Male aedeagus (Engaru).

Derm brownish black to black, antennae and tarsi reddish brown, punctures for the most part hidden by muddy clothings.

Head with reticulate punctures, their interstices much narrower than the diameters, lateral sides behind eyes slightly or insensibly depressed ; forehead between eyes slightly or insensibly depressed ; forehead between eyes slightly narrower than the base of rostrum, with or without a median fovea ; eyes flat, three times as long as wide. Rostrum slightly curved, dorsal outline indefinitely depressed at the base, parallel-sided from the base to one-fourth from the apex, then weakly dilated distally, angular expansion of the lower edge of scrobe slight, apical area narrowly shiny, coriaceous, its anterior edge broadly arcuate with a small median emargination, dorsal surface punctate, interstices between punctures matt, coriaceous. Antennae with second segment of funicle  $2/3$  times as long as first, third and fourth transverse, the latter wider than the former.

Prothorax about as long as wide, subparallel-sided or widest before the middle, then slightly narrowing posteriorly, and rounded at posterior angles, subapical constriction a little weaker than that in *D. corticalis* and transversely continued on dorsum ; disk reticulately punctate, without depression or carina. Scutellum invisible.

Elytra  $5/3$  times as long as wide, widest at one-fourth from the base, all intervals of the same height, linear, not interrupted, fifth and seventh intervals connate at declivity and strongly laminate latero-posteriorly at apical margin.

Underside with strong punctures, being same density throughout and slightly larger at lateral margins of meso- and metasterna and first ventrite, third and fourth ventrites impunctate.

*Male* : Rostrum twice as long as wide at the base, first ventrite flattened at the middle.

*Female* : Rostrum a little more than twice as long as wide at the base, first ventrite flat or slightly convex at the middle.

Length : 3.2-3.6 mm (excl. rostrum).

Holotype female (Type No. 2533, Kyushu Univ.), Mt. Hikosan, Fukuoka Pref., 1. viii. 1954, T. Yoshida leg.

Paratypes : Nishiashoro-mura, Tokachi, Hokkaido, one female, 27. vii. 1949, R. Matsuda leg. Engaru, Hokkaido, one male, 11. viii. 1955, K. Morimoto leg. Antaroma, Hokkaido, one female, 25. vii. 1962, Y. Miyatake leg. Mt. Futatsumine, Niigata Pref., one female, 3. viii. 1965, K. Baba leg. Yumoto, Nikko, Tochigi Pref., one male and one female, 8. vii. 1950, M. Takahashi leg. Mt. Hiei, Kyoto Pref., one male and three females, 10. viii. 1977, Y. Sawada leg. Kitayama, Kyoto City, one male, 9. vii. 1980, K. Ogata leg. Mt. Atagoyama, Kyoto City, one male and one female, 12. x. 1981, Y. Sawada leg. Mt. Katsuragi, Izumi, Osaka Pref., one female, 15. vii. 1980, H. Nishida leg. Takarazuka, Hyogo Pref., two females, 18. i. 1981, Y. Sawada leg. Monobe-mura, Kochi Pref., one female, 26. viii. 1958, K. Morimoto leg. Mt. Hikosan, Fukuoka Pref., one male, 16. vii. 1954, H. Kamiya leg. Mt. Homan, Fukuoka Pref., one female, 21. xi. 1954, H. Kamiya leg. Ohata-ike, Miyazaki Pref., one male and two females, 10. ix. 1952, S. Nakao leg. Mt. Kirishima, Kagoshima Pref., one female, 4. viii. 1950, R. Matsuda leg.

DISTRIBUTION : Japan (Hokkaido, Honshu, Shikoku, Kyushu).

This species was once identified by Konishi as *corticalis*, but its head is more strongly punctate, subapical depression on pronotum is weaker and less curved, and the elytra are more strongly laminate latero-posteriorly at apical margins. The laminate apices of elytra are considerably variable in shape, in most specimens the lamellae are semicircularly or subtriangularly projected and warped upwards, while in some specimens from southern Kyushu the conjoint apices of elytra are subtruncate as in *corticalis* and the projections are weaker.

***Dryophthorus ogasawaraensis* sp. nov.**

Derm black, antennae, tarsi and apex of rostrum reddish brown, femora and tibiae dark reddish brown ; punctures for the most part hidden by matted pubescence or muddy clothings.

Head with reticulate punctures, forehead between eyes a little narrower than the base of rostrum, without a median depression ; eyes flat, three times as long as wide. Rostrum weakly curved, its dorsal outline slightly depressed at the base, parallel-sided from the base to the middle (apart from the usual angular projection of the lower edge of scrobes) and thence rapidly widening to the apex; basal half with two rows of punctures on each side, apical area shiny, impunctate, its anterior edge broadly arcuate

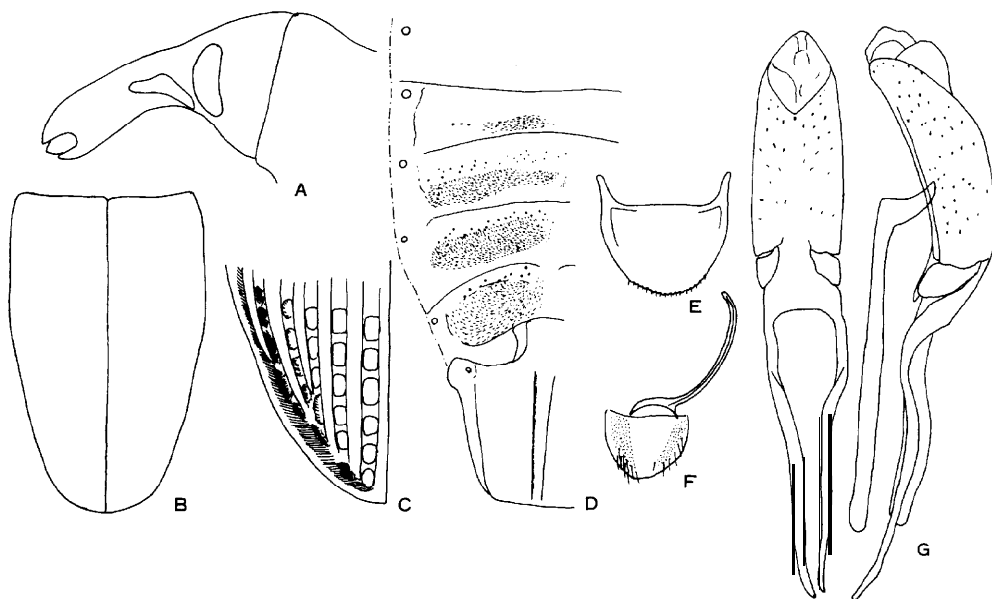


Fig. 2. *Dryophthorus ogasawaraensis* sp. nov.

A : Female head, lateral. B : Outline of elytra. C : Apex of left elytron. D : Tergum of male abdomen. E : Ditto, eighth tergite. F : Ditto, eighth and ninth sternites. G : Male aedeagus.

with a small median emargination. Antennae with scape reaching posteriorly a little beyond eyes, second segment of funicle conical,  $2/3$  the length of first, third and fourth transverse, the latter wider than the former.

Prothorax almost as long as wide, widest at one-third to one-fourth from the base, weakly rounded laterally, subapical constriction weak on disk ; disk densely reticulate-punctate, without median depression or carina. Scutellum invisible.

Elytra about  $5/3$  times as long as wide, widest at one-fourth from the base, then weakly narrowing posteriorly, conjoint apices rounded ; striae with coarse punctures ; intervals linear, narrower than striae, all intervals of the same height, not interrupted, seventh laminate at apical margin and continued to first at apex, second to sixth intervals not reaching apical margin, but ending at depression of the conjoint first and sixth striae along apical margin.

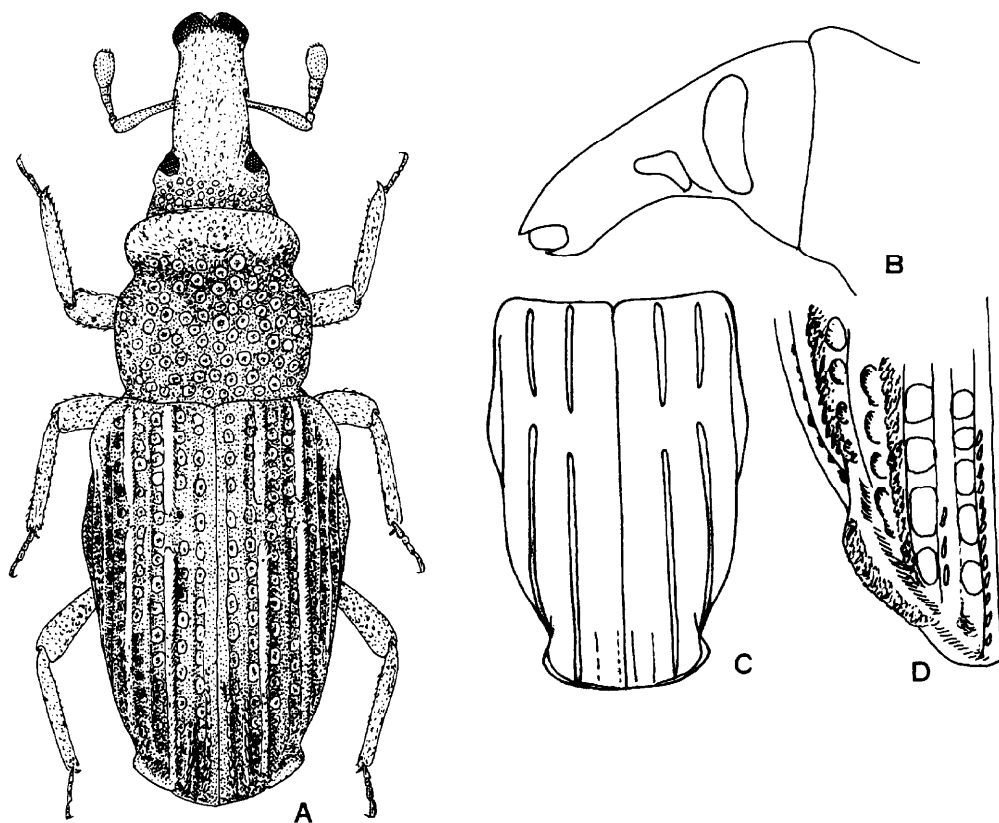
Underside with strong punctures, which are denser at sides, third and fourth ventrites impunctate.

*Male* : Rostrum about 2.3 times as long as wide at the base, antennae inserted in just behind the middle, first ventrite slightly depressed at the middle.

*Female* : Rostrum about 2.6-2.8 times as long as wide at the base, antennae inserted into basal third, first ventrite flattened or slightly convex medianly.

Length : 3.2-3.7 mm (excl. rostrum).

Holotype female (Type No. 2534, Kyushu Univ.), Ohmura, Chichijima I., 18. vi. 1976, H. Irie leg.



**Fig. 3.** *Dryophthorus kusuii* sp. nov.

A : Holotype. B : Ditto, head, lateral. C : Outline of elytra. D : Apex of left elytron.

Paratypes : Same data as holotype, one male. Yoakeyama, Chichijima I., one male, '20. vi. 1975, T. Seino leg. Okimura, Hahajima I., three females, 25. v. 1972, Y. Kusui leg. Kitamura, Hahajima I., two males, 27-28. ix. 1977, Y. Watanabe leg.

DISTRIBUTION : Japan (Ogasawara Isls.: Chichijima, Hahajima).

***Dryophthorus kusuii* sp. nov.**

Derm brownish black to black, antennae and tarsi dark reddish brown, matted pubescence and muddy clothings concealing sculptures.

Head with subreticulate punctures and with a very shallow indefinite transverse impression behind eyes, forehead between eyes  $7/10$  the width of rostrum at the base, without median depression ; eyes flat, three times as long as wide. Rostrum robust, slightly curved, dorsal outline continuous to forehead in lateral aspect, twice as long as wide at the base, parallel-sided from the base to antennae, there widening laterally below scrobes, and thence weakly widening to the apex, apical area bare, shiny, its anterior margin emarginate at the middle, dorsal surface with punctures longitudinally

confluent and forming two indistinct rows on each side, lateral surface before eyes with shallow constriction. Antennae inserted in the basal third of rostrum, first segment of funicle almost as long as second, second to fourth successively widening distally.

Prothorax about as long as wide, gradually widening from the base to  $2/5$  from the apex, then strongly rounded and very deeply constricted near the apex, the constriction continued on dorsum and running obliquely backwards to join a deep median depression at about one-third from the apex, disk with reticulate deep punctures, which bearing each a short hair. Scutellum invisible.

Elytra about  $7/10$  times as wide as long, widest at one-fourth from the base, third and fifth intervals costate with dense matted pubescence, which absent for a short distance at about one-third from the base, the other intervals almost as high as the septa between punctures of striae, fifth and seventh intervals conjoint at declivity, angulately expanded a little behind the conjoint point, then forming robust lamella along apical margin.

Underside with scattered deep punctures, being a little larger at sides, third and fourth ventrites impunctate.

Length : 3.4-3.5 mm (excl. rostrum).

Holotype female (Type No. 2535, Kyushu Univ.), Ohmura, Chichijima I., 18. vi. 1976, H. Irie leg.

Paratypes : Sakaiura, Chichijima I., one female, 11. vi. 1972, Y. Kusui leg.

DISTRIBUTION : Japan (Ogasawara Isls.: Chichijima).

This species is easily separable from the others by the shape of elytra near apex, and weakly costate and pubescent third and fifth intervals of elytra.

#### KEY TO SPECIES OF THE GENUS *Dryophthorus* FROM THE HOLARCTIC REGION

- 1(2): Elytra with third and fifth intervals with ridges of matted pubescence except for a short interruption at about one-third from the base ; the other intervals almost as high as the septa between punctures of striae ; fifth and seventh intervals conjoint at declivity, angularly expanded a little behind the conjoint point, and then forming robust lamella to the apex. (Ogasawara Isls.). ..... *D. kusuii* sp. nov.
- 2(1): Elytra with intervals linear, almost bare, at most with some short scales on declivity, all intervals of the same height.
- 3(8): Seventh interval of elytra more or less laminate and expanded posteriorly at apical margin.
- 4(5): Elytra almost parallel-sided, broadly and semi-circularly rounded at conjoint apices. (Japan). ..... *D. sculpturatus* (Wollaston)
- 5(4): Elytra widest at about one-fourth to one-third from the base, then narrowing posteriorly, laminate expansion narrow, semicircular or subtriangular.
- 6(7): Head with smaller punctures, their interstices about as wide as the diameters ; prothorax with strong subapical constriction, which inflexed posteriorly on dorsum ; elytra with narrow lamella at apex, conjoint apices subtruncate. (Europe). ..... *D. corticalis* (Paykull)
- 7(6): Head with dense and large punctures, their interstices much narrower than the diameters ; prothorax with weak subapical constriction, which is slightly or scarcely

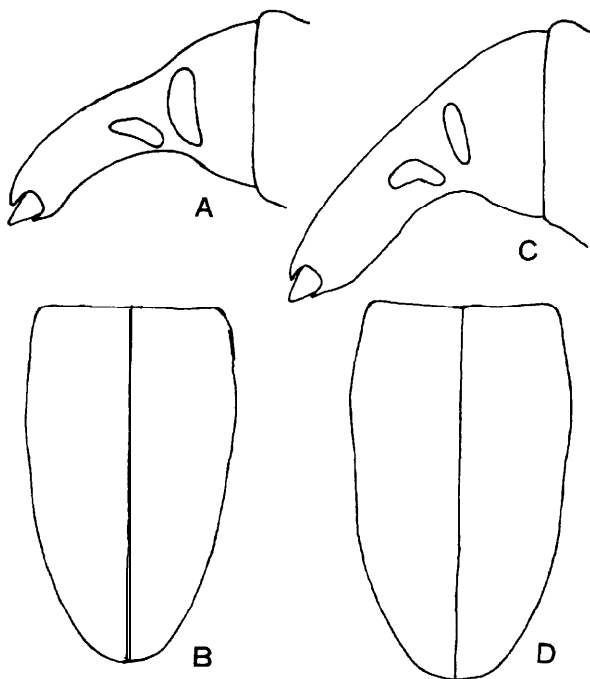


Fig. 4. A, B : *Dryophthorus americanus* Bedel. C, D : *D. japonicus* Konishi.

A, C: Male head, lateral. B, D: Outline of elytra.

- sinuate and weakly depressed on dorsum ; elytra strongly laminate and more or less producing latero-posteriorly at apical margin. (Japan). ..... *D. konishii* sp. nov.
- 8(3): Elytra with seventh interval forming a continuous side curve and conjointly rounded at apex in dorsal aspect.
- 9(10): Elytra with seventh interval not conjoint with fifth at declivity, narrowly laminate at apical margin ; prothorax weakly rounded at sides. (Ogasawara Isls.). .....  
..... *D. ogasawaraensis* sp. nov.
- 10(9): Elytra with fifth and seventh intervals conjoint at declivity and costate at apical margin.
- 11(12): Eyes smaller ; dorsal outline of rostrum continuous to forehead in lateral aspect, without median depression between eyes ; elytra broadly rounded at apex. (Japan). ..... *D. japonicus* Konishi
- 12(11): Eyes larger ; dorsal outline of rostrum slightly depressed at base in lateral aspect ; forehead between eyes with shallow median depression formed of some large punctures ; elytra more strongly narrowing posteriorly. (North America). ....\*.....  
..... *D. americanus* Bedel

### *Tetrasynommatus* gen. nov.

Type-species : *Tetrasynommatus thompsoni* sp. nov.

Body *Dryophthorus*-like in form, sculpture and vesture.

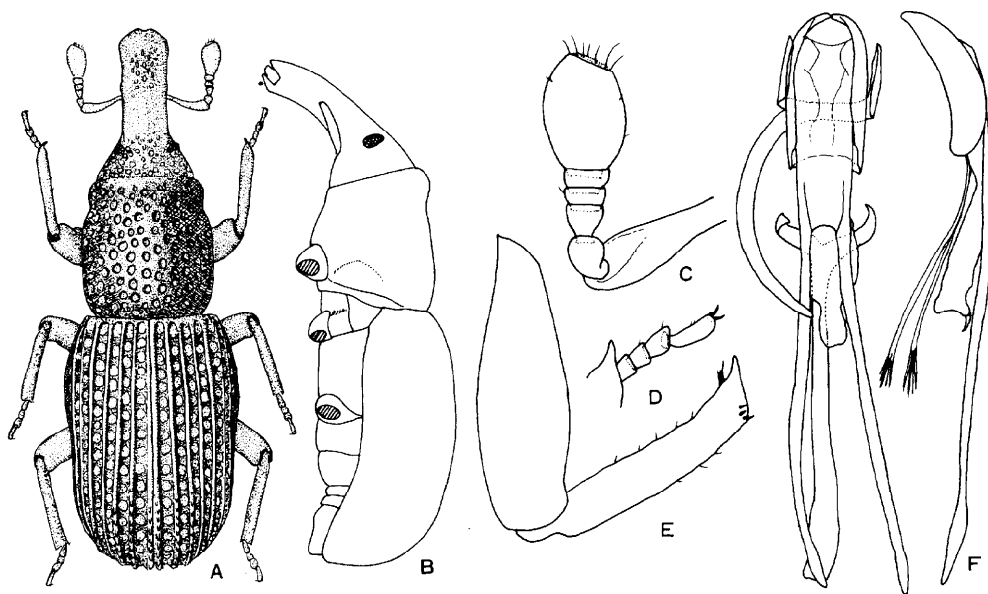
Head ████████ forehead between eyes a little narrower than the base of rostrum,



Prosternum before coxae three times as long as postcoxal bridge behind coxa, fore coxae contiguous ; mesosternum a little below the level of metasternum, mesosternal process narrow triangular, sloping ; mesocoxae narrowly separated ; median length of metasternum about as long as first ventrite, metepisternal suture completely absent. First ventrite between hind coxae a little narrower than a coxa, median length longer and lateral length behind coxa shorter than second ventrite, suture between them complete, second ventrite longer than the third and fourth combined.

KEY TO GENERA OF THE TRIBE STROMBOSKERINI

- 1(16): Antennal club obliquely truncate, tomentose apical surface almost flat.  
2(7): Eyes contiguous ventrally.  
3(6): Antennal funicle with 5 segments.  
4(5): Prothorax with post-ocular lobes ; derm smooth, opaque. .... *Stromboscerus* Schoenherr  
5(4): Prothorax without post-ocular lobes ; derm rugose, with costate intervals on elytra.  
..... *Synommatus* Pascoe  
6(3): Antennal funicle with 6 segments\_ ..... *Allaeotes* Pascoe  
7(2): Eyes more or less separated ventrally.  
8(11): Antennal funicle with 4 segments.  
9(10): Eyes linear, lateral, partly concealed by prothorax in repose ; scutellum small,  
narrow, immersed. ....\* ..... *Dryophthoroides* Roelofs  
10(9): Eyes small, dorso-lateral, widely separated from the anterior margin of prothorax ;  
scutellum absent. .... *Tetrasynommatus* gen. nov.  
11( 8): Antennal funicle with 5 or 6 segments.  
12(13): Antennal funicle with 5 segments ; eyes suboval, lateral. .... *Synommatoides* Morimoto  
13(12): Antennal funicle with 6 segments.  
14(15): Eyes suboval, lateral. .... *Orthosinus* Motschulsky  
15(14): Eyes linear, narrowly separated ventrally. .... *Dexipeus* Pascoe  
16(1): Antennal club with subconical tomentose apex ; funicle with 6 segments.  
17(18): Eyes separated ventrally. .... *Tasactes* Faust  
18(17): Eyes contiguous ventrally. .... *Nephius* Pascoe



**Fig. 5.** *Tetrasyommatus thompsoni* sp. nov.

A, B : Holotype. C : Antenna. D : Hind tarsus. E : Hind leg. F : Male aedeagus.

***Tetrasyommatus thompsoni* sp. nov.**

Chocolate brown to dark brown, opaque, punctures filled with brownish grey coat.

Head with dense punctures, which are smaller than those on pronotum, forehead between eyes without median fovea. Eyes with five facets broad and seven facets high at middle, the lower margin on the level of mesial line of head seen laterally. Rostrum slightly dilated laterally at antennal sockets and at apex, weakly curved,  $6/7$  times as long as the dorsal length of prothorax, with dense oblong punctures, which are concealed by greyish incrustation at basal half between scrobes and forehead, apical margin weakly notched. Antennae with scape clavate, first segment of funicle sub-globular, a little longer than wide, second segment conical, as long as wide, club  $2/3$  times as broad as long, apical tomentose part oblique.

Pronotum slightly longer than broad, subparallel-sided from the basal  $1/4$  to apical  $1/4$ , then weakly narrowed to subapical constriction, which is obsolete on disk, apical margin truncate, basal margin truncate and slightly broader than apical margin, disk with large punctures.

Elytra 1.4 times as long as broad,  $5/3$  times as long as pronotum, broadest between humeri and middle, conjointly rounded at apex, dorsal contour strongly curved and almost vertical at apical declivity, intervals costate, narrow, first interval reaching the apical margin, second interval joining tenth at apex, third interval joining seventh at declivity and connected with ninth at apex, the other intervals separately terminate

posteriorly, in the fresh specimens intervals covered with grey pubescence in entire length and with short grey prostrate scales on declivity ; striae well and regularly marked, septa of punctures about as long as their length.

Legs with femora moderately set with punctures bearing small scales or velutinous coat ; tibiae with weak longitudinal costae and with matted pile.

Sternum with anterior prosternal margin so emarginate that distance on median line from anterior margin to ventral extension of subapical constriction half as long as that on side, latero-ventral surface of prothorax above coxae depressed, prosternum and lateral surface punctate, the punctures a little smaller than those on pronotum. Metasternum with large punctures as on pronotum. Venter with first, second and fifth ventrites punctate as on metasternum, third and fourth ventrites each with a row of small punctures, fifth ventrite smooth and shiny at apex.

Male aedeagus with penis parallel-sided on basal two-thirds, then evenly rounded distally, with a small median notch at apex.

**Female** : Only distinguished from the male by the slightly slenderer rostrum.

Length : 3.0-3.7 mm (excl. rostrum).

Holotype female (Type No. 2536, Kyushu Univ.), Mt. Hikosan, Fukuoka Pref., 22. ix. 1938, Hori and Fujino leg.

Paratypes : Same data as holotype, one male (dissected). Miyanoshita, Hakone, seven females, May, 1880, G. Lewis leg. Mt. Fujisa, one female, G. Lewis leg.

DISTRIBUTION : Japan (Honshu, Kyushu).

“Mt. Fujisa” of Lewis collection means probably Mt. Fujisan, because Lewis often wrote the locality name in an abbreviated form on the underside of the affixed card.

#### INTRODUCED SPECIES

##### **Sphenophorus venatus vestitus** Chittenden, 1904

This weevil was first found at golf courses on Okinawa in 1979 and in Fukuoka in 1980, and recently discovered at several golf courses in Hyogo and Osaka Prefs., and at the bank of Tamagawa River in Tokyo. This weevil is known as Hunting billbug or Zoisiagrass billbug in U. S. A., and apparently introduced into Japan together with lawn grass and established as a serious pest to *Zoisia tenuifolia*, *Z. japonica*, *Z. macrostachya* and *Cynodon dactylon*.

##### **Diocalandra frumenti** (Fabricius, 1801)

According to Prof. S. Azuma (1984), this weevil was discovered in 1977 on Okinawa from palm trees introduced from Taiwan and established.

##### **Rhynchophorus vulneratus** (Panzer, 1798)

One male was recorded from Kobe by Dr. A. Wattanapongsiri (1966) but not established in Japan.